Claims

1. A fatty acid composition **characterized** in that said composition contains less than 3 % saturated fatty acids, more than 10 % C18;3 fatty acids, more than 30 % C18;2 fatty acids and less than 35 % C18;1 fatty acids, said fatty acids providing improved low temperature stability of the composition, and that the cloud point of said fatty acid composition is lower than –4 °C, and said composition lacks a paraffine dispergent.

2. A fatty acid composition according to claim 1 **characterized** in that said fatty acids are derived from plant sources.

3. A fatty acid composition according to claim 1 or 2 **characterized** in that said fatty acids are derived from tall oil or vegetable sources.

4. A fatty acid composition according to claim 1, 2 or 3 **characterized** in that the composition contains less than 1.5 % saturated fatty acids and more than 90 %, preferably more than 95 %, more preferably more than 98 % unsaturated fatty acids.

5. A fatty acid composition according to claim 4 **characterized** in that the content of the C18;3 fatty acids is more than 15 %, preferably more than 20 %, more preferably more than 25 %.

6. A fatty acid composition according to claim 5 **characterized** in that said C18;3 fatty acid is pinolenic acid.

7. A fatty acid composition according to claim 4 or 5 **characterized** in that the total content of C16;0, C17;0 and C18;0 fatty acids is less than 2.2 %, more preferably less than 1 %, most preferably less than 0.5 %,

8. A fatty acid composition according to claim 4 **characterized** in that the content of C20;0 fatty acids is less than 1 %, preferably less than 0.5 %.

9. A fatty acid composition according to claim 4 **characterized** in that the content of the resin acids is less than 5 %, preferably less than 2 %, more preferably less than 1 %.

10. A fatty acid composition according to claim 4 **characterized** in that the content of the C18;2 fatty acids is more than 40 %, preferably more than 50 %.

11. A fatty acid composition according to claim 4 **characterized** in that the content of the C18;1 fatty acids is less than 25 %, preferably less than 20 %.

12. A fatty acid composition according to any one of the preceding claims **characterized** in that the composition contains more than 10 %, preferably more than 15 % C18;3 fatty acids and more than 30 %, preferably more than 40 % C18;2 fatty acids and less than 1 %, preferably less than 0.5 % C18;0 fatty acids and less than 2 %, preferably less than 1 % resin acids and the total of saturated fatty acids is less than 1.5 %.

13. A fatty acid composition according to any one of the preceding claims having a cloud point factor below 0.28 calculated according to the equation I $Cp_{fac} = A \cdot [C16;0] + B \cdot [C17;0] + C \cdot [C18;0] + D \cdot [C20;0] + E \cdot [C18;1] + F \cdot [C18;2] + G \cdot [C18;3] + H \cdot [Resin]$, wherein [C16;0] means concentration of C16 saturated fatty acids, [C17;0] means concentration of C17 saturated fatty acids, [C18;0] means concentration of C18 saturated fatty acids, [C20;0] means concentration of C20 saturated fatty acids, [C18;1] means concentration of C18 mono-unsaturated fatty acids, [C18;2] means concentration of C18 di-unsaturated fatty acids, [C18;3] means concentration of C18 tri-unsaturated fatty acids, [Resin] means concentration of C16 resin fatty acids and concentration factors are A = 6.2, B = 1.32, C = 34.5, D = 0.075, E = 1.3, F = -0.27, G = -5.1 and H = 17.

14. A fatty acid composition according to any one of the preceding claims **characterized** in that the cloud point of said fatty acid composition is lower than –6 °C, preferably lower than –10 °C, more preferably lower than –15 °C, most preferably lower than –20 °C.

15. An ester **characterized** in that said ester is produced from fatty acid composition according to claim 1.

16. A glycerol ester **characterized** in that said glycerol ester is produced from fatty acid composition according to claim 1.

17. A process for producing a fatty acid composition according to claim 1 **characterized** in that said process comprises the steps of
selecting a crude tall oil having a fatty acid concentration and type capable of providing low temperature stability
distilling said crude tall oil to provide a fatty acid composition containing an effective amount of tall oil fatty acids providing low temperature stability.

18. A process according to claim 17 **characterized** in that selecting includes blending of different crude tall oils.

19. A process according to claim 17 **characterized** in that said crude tall oil is derived from trees grown in a cold climate.

20. A process according to claim 17 **characterized** in that more than 4 % of the fatty acids of the crude tall oil are triple unsaturated fatty acids.

21. A process according to claim 17 **characterized** in that less than 1 % of the fatty acids of the crude tall oil are saturated fatty acids of C18 or greater.

22. A process according to claim 13 **characterized** in that less than 0.3 %, preferably less than 0.2 %, more preferably less than 0.1 % of the fatty acids of the crude tall oil are C18;0 fatty acids.

23. Use of a fatty acid composition according to claim 1 as a fuel additive.

24. Use of a fatty acid composition according to claim 1 as a lubricity improver in fuel.

25. Use according to claim 24 **characterized** in that said lubricity improver forms a part of a fuel additive package containing other additives.

26. Use according to claim 25 **characterized** in that said other additives are one or more of detergent, cold flow additive, antifoam, static dissipate and/or antioxidant.

27. Use of an ester according to claim 15 or 16 as a fuel additive.

28. A fuel additive comprising fatty acid composition according to claim 1 **characterized** in that it is stable at temperature below –4 °C.

29. A fuel containing a fatty acid additive **characterized** in that said fuel contains an effective amount of a low temperature stable fatty acid lubricity enhancer according to claim 1 which is stable at temperature below –4 °C.

30. A fuel according to claim 29 **characterized** in that said fuel is diesel, gas oil, gasoline, aviation fuel or kerosene, or a mixture thereof.

31. A fuel according to claim 29 **characterized** in that sulfur content of said fuel is less than 500 ppm, preferably less than 350 ppm, more preferably less than 50 ppm, more preferably less than 15 ppm, most preferably less than 10 ppm.

32. A fuel according to claim 29 **characterized** in that said fuel contains 10 to 1000 ppm of said fatty acid lubricity enhancer.